

REMARKS

This Reply and Amendment is intended to be completely responsive to the Office Action dated November 19, 2003. Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. Claims 39-76 stand rejected. On entry of this Reply and Amendment, Claims 39, 54, and 65 will be amended for clarity. Accordingly, Claims 39-76 will be pending in this Application.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

No new matter has been added.

The Applicants note that the Office Action summary dated November 19, 2003 incorrectly indicates that Claims 43-76 are pending in the present application. As shown in the Listing of Claims in the Reply and Amendment dated September 2, 2003, Claims 39-76 are pending in the present application.

Specification and Rejection under 35 U.S.C. § 112

On page 2 of the Office Action, the amendment filed September 2, 2003 was objected to under 35 U.S.C. § 132.

Claims 43-76 were also rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.

The Applicants believe that the Examiner intended that the rejection under 35 U.S.C. § 112, first paragraph was to apply to pending Claims 39-76, based on the reasons presented by the Examiner. Again, as shown in the "Listing of Claims" of the September 2, 2003 Reply and Amendment, Claims 39-76 are pending in the present application.

Independent Claims 39, 54, and 65 have been amended for clarity. The Applicants submit that the rejections under 35 U.S.C. § 132 and 35 U.S.C. § 112 have been overcome. Reconsideration and withdrawal of the rejections under 35 U.S.C. § 132 and 35 U.S.C. § 112, first paragraph is therefore respectfully requested.

Claim Rejections – 35 U.S.C. § 103(a)

On page 3 of the Office Action, Claims 35-76 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 3,556,853 (“Cannone”) in view of U.S. Patent No. 5,858,575 (“Chen”).

The Applicants believe that since Claims 35-38 were previously cancelled, this rejection was intended by the Examiner to apply to pending Claims 39-76. Accordingly, the arguments presented below address the rejection of Claims 39-76 under 35 U.S.C. § 103(a).

Claims 39, 54, and 65 are in independent form. Claims 40-53 depend from Claim 39. Claims 55-64 depend from Claim 54. Claims 66-76 depend from Claim 65.

Claim 39 (as amended) relates to a “grid for a battery” and recites, in combination with other elements, “a plurality of wire elements” in which “at least one of the wire elements has a first transverse cross-section taken at a position intermediate the opposed ends of the wire element and a second transverse cross-section taken at one of the opposed ends of the wire element, the second transverse cross-section being generally rectangular and the first transverse cross-section being non-rectangular.”

Claim 54 (as amended) relates to a “grid for a battery” and recites, in combination with other elements, “a plurality of wires having a plurality of surfaces, at least one of the wires having a substantially rectangular cross-section at a first location and a non-rectangular cross-section at a second location.”

Claim 65 (as amended) relates to a “grid for a battery” and recites, in combination with other elements, “a means for supporting an active material” that “includes at least one wire element having a generally rectangular cross-sectional shape at a first location and a non-rectangular cross-sectional shape at a second location.”

The subject matter recited in independent Claims 39, 54, and 65 (as amended) would not have been obvious over Cannone in view of Chen under 35 U.S.C. § 103(a). Cannone shows a “generally circular grid structure” that includes “concentric circular structural members” that are “joined by radial structural members” and that have a “cross-section configuration” that is “essentially hexagonal” (Column 2, lines 44-47; Column 3, lines 21-23). Chen relates to “hot dipped Pb-Ca grids for lead-acid batteries” and shows an “expanded battery grid” comprising “a plurality of grid wires 4” that are “interconnected by a plurality of nodes 6 to form a gridwork for supporting the electrodes active material” (Column 2, lines 56-59).

However, the combination of Cannone and Chen would not result in the subject matter recited in independent Claims 39, 54, and 65, or in corresponding dependent Claims 40-53, 55-64, and 66-76. For example, neither Cannone or Chen, alone or in any proper combination, disclose, teach or suggest a “wire element” that has a “second transverse cross-section” that is “generally rectangular” and a “first transverse cross-section” that is “non-rectantular,” as recited in Claims 39-53. Cannone and Chen, alone or in any proper combination, also do not disclose, teach or suggest a “wire” that has a “substantially rectangular cross-section at a first location and a non-rectangular cross-section at a second location,” as recited in Claims 55-64. Further, Cannone and Chen, alone or in any proper combination, do not disclose, teach or suggest a “wire element” that has a “generally rectangular cross-sectional shape at a first location and a non-rectangular cross-sectional shape at a second location,” as recited in Claims 65-76.

In contrast, for example, Cannone shows in Figure 1 that the cross-section of both the center and ends of the “concentric circular structural members” is “essentially hexagonal” (see, e.g., the point at which member 11 intersects radial member 14, where member 11 has an essentially hexagonal cross-section at the point of contact with radial member 14), and there is no teaching or suggestion in Cannone that the cross-section differs between two different locations in the “concentric circular structural members.” Chen also does not disclose, teach, or suggest the “wire” recited in independent Claim 54 or the “wire element” recited in independent Claims 39 and 65 (and their corresponding dependent claims).

Furthermore, to transform the combination of Cannone and Chen to the “wire element” recited in independent Claims 39 and 65 (and corresponding dependent Claims 40-53 and 66-76) or the “wire” recited in independent Claim 54 (and corresponding dependent Claims 55-64) would require still further modification, and such modification is taught only by the Applicants’ own disclosure.

The subject matter recited in Claims 39-76, considered as a whole, would not have been obvious to a person having ordinary skill in the art in view of the combination of Cannone and Chen. The rejection of Claims 39-76 over Cannone in view of Chen under 35 U.S.C. § 103(a) is improper. Therefore, Claims 39-76 are patentable over Cannone in view of Chen.

* * *

It is submitted that each outstanding objection and rejection to the Application has been overcome, and that the Application is in a condition for allowance. Claims 39-76 will be pending in this Application upon entry of this Reply and Amendment. The Applicants request reconsideration and allowance of all pending Claims 39-76.

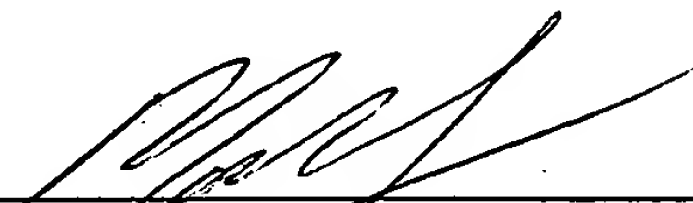
The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 06-1447. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 06-1447. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 06-1447.

Respectfully submitted,

Date 2/12/04

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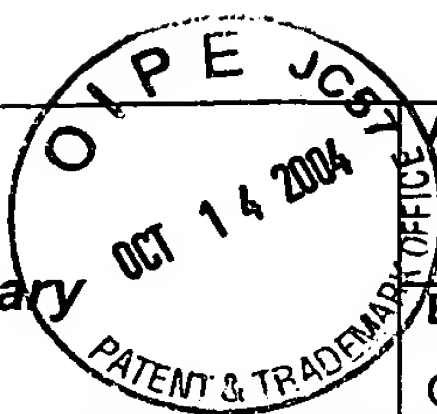
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OCT 14 2004 PATENT & TRADEMARK OFFICE				
EXAMINER CHANEY, CAROL DIANE				
ART UNIT		PAPER NUMBER		
1745				

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary



Application No.

09/755,337

Applicant(s)

CHEN, YU-LIN

Examiner

Carol Chaney

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 39-76 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 39-76 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 39-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cannone, US Patent 3,556,853 in view of Chen, US Patent 5,858,574, for reasons of record. The examiner apologizes for any confusion resulting from the inadvertent error in claim numbering in the previous office action.

Cannone discloses a grid for a lead-acid battery which includes wire elements connected to nodes. As best seen in Figure 1 of the Cannone patent, the intersections of the concentric circular members 10, 11, 12, and 13 with the radial structural members 14 are nodes. Both the concentric circular members and the radial members are wires because they are slender rods. The cross-section of the radial structural members at points between the nodes will be rectangular. The cross-sections of the nodes are hexagonal.

The disclosure of Cannone differs from applicants' claims in that Cannone does not teach coating the inventive battery grid and does not specify elemental grid compositions. Chen teaches that lead-calcium alloys can be used in casting, rolling, and expanding process to make battery grids. (Column 1, lines 37-42.) Chen further teaches that coating lead calcium grids with a lead-tin alloy significantly extends the lives of batteries having the coating. (See column 2, lines 9-11.) Thus it would have been obvious to one of ordinary skill in the art to form the grid disclosed by Cannone

Art Unit: 1745

from a lead-calcium alloy, because Chen teaches lead-calcium alloys are a versatile battery grid material. One of ordinary skill in the art would also coat a lead-calcium grid with a lead tin alloy because Chen teaches this will extend the life of the battery.

With regards to claim 42, any material, and any coating will be porous in the broadest meaning of the term.

With regards to claims 43-47, Chen teaches specifically that lead-tin alloy coatings having between 0.1 and 20% tin may be used, and coatings having 1 to 20 % by weight antimony and up to 2% by weight tin may be used. (Chen, column 4, lines 36-38 and 62-65.) In a specific example, a coating with a melting point of 590 °F is used. (Column 5, lines 34-35.)

With regards to claims 48-52, Chen discloses Pb-Ca-Sn alloy grids containing 0.08 wt% Ca and 1.5 wt% Sn. (Column 4, lines 46-48.)

With regards to claim 53, the limitation "at least about 0 to about 0.02 weight percent silver" is interpreted to encompass 0 weight percent silver, and thus this limitation is met by the Chen disclosure.

Response to Arguments

Applicant's arguments filed 12 February 2004 have been fully considered but they are not persuasive. Applicants assert that the combination of Cannone and Chen would not result in the subject matter recited in independent Claims 39, 54, and 65, or in corresponding dependent Claims 40-53, 55-64, and 66-76. Applicants maintain

Art Unit: 1745

Cannone or Chen, alone or in any proper combination, so not disclose, teach or suggest a "wire element" that has a second transverse cross-section that is "generally rectangular" and a "first transverse cross-section" that is "non-rectangular," as recited in Claims 39-53; do not disclose, teach or suggest a wire that has a substantially rectangular cross-section at a first location and a non-rectangular cross-section at a second location as recited in Claims 55-64. and do not disclose, teach or suggest a wire element that has a generally rectangular cross-section shape at a first location and a non-rectangular cross-sectional shape at a second location, as recited in Claims 65-76.

Applicants note that in the Cannone reference "at the point at which member 11 intersects radial member 14, ...member 11 has an essentially hexagonal cross-section at the point of contact with radial member 14". From Figure 1 of the Cannone patent, radial member 14 has a transverse rectangular cross section at the points between the concentric circular structural members 10, 11, 12, and 13. Element 14 is a "wire" since it meet the definition of a wire as a "slender metal rod" given by the Merriam-Webster Dictionary at www.m-w.com, a hexagonal cross section at the intersections of radial member 14 with any of elements 10, 11, 12, or 13, and has a rectangular cross sections at the points between any of elements 10 and 11, 11 and 12, or 12 and 13.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 1745


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol Chaney whose telephone number is (571) 272-1284. The examiner can normally be reached on Mon - Fri 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Carol Chaney
Primary Examiner
Art Unit 1745

cc